# INSECT AND DISEASE CONDITIONS ON THE RED BIRD PURCHASE UNIT DANIEL BOONE NATIONAL FOREST - 1978

At the present time, there are no single specific insect or disease problems on the Red Bird Purchase Unit. With the exception of fire, defoliator outbreaks or wood boring insects, the young hardwoods should withstand pressures of the environment, insects and diseases with minimum losses. However, as these stands age, the manager must be aware of some potential problems. Since the pine component of this unit is now quite low, we have not discussed pine problems in this report.

Most hardwood disease losses will result from butt and root rot. In addition, most butt and root rot fungi will enter at fire wounds. It is important, therefore, that fire be controlled. The fire history of the lands in the Red Bird Unit will have as much impact on disease management as any other single factor.

Under forest conditions, there is essentially no control for diseases once they become established. Only through prevention or salvage can losses be minimized. Fire control, as already indicated, is the most important. Below are listed some additional ones:

HARDWOODS

-Match preferred species with site requirements

-Encourage multispecies stands when practical

-Maintain stand vigor

-Maintain proper stocking

  -understocked - encourages storm damage and canker development

  -overstocked - encourages top breakage due to whip-like top following thinning

-Reduce number and size of wounds

  -control fire - fire history is more important than site index in determining quality of saw timber

-Reduce logging wounds

  -establish penalties for injuries

  -remove severely damaged trees after thinning cut

  -during thinning, leave buffer trees along skid roads until most cutting is complete.

NOTE: Logging wounds less than 6" in diameter generally result in discoloration. Larger wounds generally result in decay.

-Reduce soil disturbances

  -compaction from logging, construction, etc.

- erosion following logging, construction, etc.

-Salvage and/or otherwise, remove or kill diseased and damaged trees

-clean up after storms

-remove deformed and diseased trees during TSI operations

-fell residual, defective stems following logging or other operations so that eventual breakup will not damage regeneration.

NOTE: The sale or "free use" of firewood has become popular in recent years. Since sprouts from these stumps may produce future stands, attention should be paid to producing a low, smooth, slanting stump.

-Prune limbs from first log of potential high value crop trees

-Favor seedling regeneration over sprouts when possible

-use disease resistant seedlings when available

-Encourage sound sprouts when seedling regeneration not practical

-favor sprouts from small stumps

-favor low origin sprouts

-prune back unwanted sprouts early if economical

-favor root sprouts over stump sprouts.

-During selective cuts, properly identify and manage twins

-in the case of twin stems with a V-crotch at the base - cut both or leave both

-in the case of twin stems with a U-crotch at the base - one stem can be harvested with one left uncut.

Occasionally, insect defoliator outbreaks such as fall cankerworm and oak sawfly may occur. Repeated severe defoliations over a period of several years may cause a growth loss, dieback and tree mortality. This is especially true of overmature trees. Such outbreaks cannot necessarily be predicted or prevented, however, losses can be minimized by maintaining a vigorous stand.

As trees mature, wood boring insects will also become more important. The insect borers cause more measurable dollar loss (defect and degrade) in hardwood stands than any other group of insects.[1/] This is particularly true in even aged pole stands. To minimize losses to borers, several silvicultural practices can be incorporated.

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1/ Solomon, S. D. 1977. Impact and control of insect borers in southern hardwoods. In Proceedings - Second Symposium on Southeastern Hardwoods. USDA, FS, SA, S&PF.

-Fit the tree species to the site.

-Keep trees growing vigorously.

-Harvest trees when physiologically mature.

-Prevent or keep injuries to a minimum during harvesting and other operations.

-Initiate close surveillance of timber stands during and/or following periods of severe tree stress. This includes drought, flooding, fire and storm damage.

-Identify and remove brood trees harboring insect borers to reduce spread.

## SUMMARY

Increasing the vigor of forest stands will reduce insect and disease outbreaks and improve the quality of forest products. Thus, the control of these problems should be of primary concern to the timber manager. Some of the suggested control practices are the same for both insects and diseases and all are targeted to maximizing tree health and vigor.

These same considerations should also be given to the management of stands in areas where they influence other objectives; some of which are water, wildlife and recreation. Where outbreaks and subsequent cuttings may affect these objectives, or where healthy safe trees are required for aesthetic purposes, stands should again be managed for maximum vigor.